

11. An anhydrous process for preparing biodegradable polymer microspheres, comprising the steps of:

a) blending a mixture of biodegradable polymer and a first organic solvent capable of dissolving the biodegradable polymer with one or both of a biologically active material and a biologically active material-stabilizer matrix;

b) adding with stirring to the product of step a) an oil containing a stabilizer under conditions suitable to evaporate at least a portion of the first organic solvent and to form an emulsion containing microspheres of polymer;

c) adding to the emulsion of step b) a second non-polar organic solvent suitable to extract residual first organic solvent under conditions suitable to extract at least a portion of the first organic solvent;

d) collecting biodegradable polymer microspheres from the product of step c).

12. The process of claim 11, wherein the biodegradable polymer is poly (DL-lactide-co-glycolide) polymer.

13. The process of claim 11, wherein the first organic solvent is acetonitrile.

14. The process of claim 11, wherein the biologically active material is an antigen, a vaccine, an antibiotic, a peptide, an anesthetic, an analgesic, an interleukin agent, an anticancer agent, or a hormone.

15. The process of claim 11, wherein the stabilizer of step a) is a sucrose.

16. The process of claim 11, wherein the oil of step b) is selected from the group consisting of mineral oil, silicone oil, a machine oil, and mixtures thereof.

17. The process of claim 11, wherein step b) is carried out at a temperature between 20-40° Celsius.

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18. The process of claim 11, wherein step b) is carried out at a temperature below 30° Celsius.

19. The process of claim 11, wherein the stabilizer of step b) is lecithin.

20. The process of claim 11, wherein the second non-polar organic solvent of step c) is selected from the group consisting of heptane, hexane, pentane, isopropanol, and mixtures thereof.

21. The process of claim 11, wherein the biodegradable polymer microspheres are collected by filtration.

22. The process of claim 11, wherein the collected biodegradable polymer microspheres are in size between 1 and 10 micrometers.

23. A biodegradable polymer microspheres prepared by the process comprising the steps of:

a) blending a mixture of biodegradable polymer and a first organic solvent capable of dissolving the biodegradable polymer with one or both of a biologically active material and a biologically active material-stabilizer matrix;

b) adding with stirring to the product of step a) an oil containing a stabilizer under conditions suitable to evaporate at least a portion of the first organic solvent and to form an emulsion containing microspheres of polymer;

c) adding to the emulsion of step b) a second non-polar organic solvent suitable to extract residual first organic solvent under conditions suitable to extract at least a portion of the first organic solvent;

d) collecting biodegradable polymer microspheres from the product of step c).

24. The polymer of claim 23, wherein the biodegradable polymer is poly (DL-lactide-co-glycolide) polymer.

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25. The polymer of claim 23, wherein the first organic solvent is acetonitrile.

26. A process for preparing biodegradable polymer microspheres, consisting essentially of the steps of:

a) blending a mixture of acetonitrile solvent and biodegradable polymer with one or both of a biologically active material and a biologically active material-stabilizer matrix;

b) adding with stirring to the product of step a) an oil containing a stabilizer under conditions suitable to evaporate at least a portion of the acetonitrile solvent and to form an emulsion containing microspheres of polymer;

c) adding to the emulsion of step b) a non-polar solvent suitable to extract residual acetonitrile under conditions suitable to extract at least a portion of the acetonitrile solvent;

d) collecting biodegradable polymer microspheres from the product of step c).

27. A process for preparing biodegradable polymer microspheres, consisting of the steps of:

a) blending a mixture of biodegradable polymer and a first organic solvent capable of dissolving the biodegradable polymer with one or both of a biologically active material and a biologically active material-stabilizer matrix;

b) adding with stirring to the product of step a) an oil containing a stabilizer under conditions suitable to evaporate at least a portion of the first organic solvent and to form an emulsion containing microspheres of polymer;

c) adding to the emulsion of step b) a second non-polar organic solvent suitable to extract residual first organic solvent under conditions suitable to extract at least a portion of the first organic solvent;

d) collecting biodegradable polymer microspheres from the product of step c).

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